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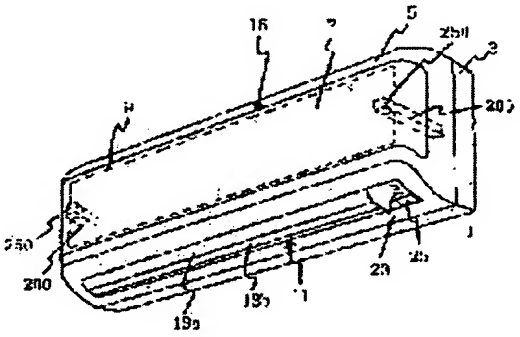
(54) WALL-MOUNTED TYPE AIR CONDITIONER

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a wall-mounted air conditioner in which a cleaning characteristic at a suction part and a fixing or a removal of a filter are facilitated while its design characteristic is being improved.
SOLUTION: A casing having a filter, a heat exchanger and a blower fan installed therein is constituted by a back cover 3 for covering the rear part of the casing, and a front cover 5 for covering the front part of the casing and having a suction opening 9 at its front part. The front cover 5 is provided with a suction panel 7 for shielding or releasing the suction opening 9. The suction panel 7 is operated to slide in a forward or a rearward direction, for example, through a panel driving mechanism 200 or oscillated around a fulcrum point at its lower part in such a way that it shields the suction part opening 9 at least during stopped operation time and releases it during operating time, and further it is removably fixed through a fixing or removing mechanism 250. With such an arrangement as above, fixing or removing of the suction panel and the filter can be facilitated while a design characteristic of an outer appearance under a mounted state is being improved and further a cleaning characteristic and a safety in operation at a high level location can be attained.



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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] Back hippo - which covers a case posterior part for the case equipped with the filter, the heat exchanger, and the blower fan inside, Case anterior part is covered and it constitutes from a front cover which equipped anterior part with intake opening. Said front cover It has the intake panel which conceals or opens the aforementioned intake opening. The aforementioned intake panel The wall installation mold air conditioner characterized by concealing the aforementioned intake opening section at least at the time of shutdown, operating through the panel drive section so that it may open at the time of operation, and being attached removable through the attachment-and-detachment device section.
[Claim 2] It is the wall installation mold air conditioner of claim 1 which the aforementioned intake panel is attached in said panel drive section, is prepared in a cross direction possible [sliding], and is characterized by for said panel drive section to consist of a guide rail which is arranged at the both sides of a filter, a heat exchanger, and a blower fan, and is attached in a front cover, a panel supporter which an intake panel is attached in an end and slides on said guide-rail top, and a mechanical component which slides this panel supporter.
[Claim 3] Said attachment-and-detachment device section is the wall installation mold air conditioner of claim 2 characterized by being prepared in the end of the panel supporter exposed at the time of panel disconnection.
[Claim 4] Said filter is the wall installation mold air conditioner of claims 1-3 characterized by being attached through the guide rail prepared in the both-sides internal surface of a front cover removable at the time of panel disconnection.
[Claim 5] The aforementioned intake panel is supported to revolve by the front cover through the attachment-and-detachment device section in the lower part. It is attached in the end of the panel drive section fixed to a front cover in the upper part removable, and is prepared rockable to a front cover. Said panel drive section The guide rail which is arranged at the both sides of a filter, a heat exchanger, and a blower fan, and is attached in a front cover, The wall installation mold air conditioner of claim 1 characterized by attaching an intake panel in an end and consisting of a panel supporter which slides on said guide-rail top, and a mechanical component which slides this panel supporter.
[Claim 6] Said filter is the wall installation mold air conditioner of claim 5 characterized by being attached removable through the guide rail which it has been arranged so that said handle may be exposed to the lower limit section of an intake panel, and was prepared in the both-sides internal surface of a front cover at the time of panel closing while being attached removable so that a handle may be located in the lower limit of intake opening.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Back hippo - which covers a case posterior part for the case equipped with the filter, the heat exchanger, and the blower fan inside, Cover case anterior part and it consists of front covers which equipped anterior part with intake opening. It is related with the wall installation mold air conditioner which makes easy attachment and detachment of the cleaning nature of the intake section, and a filter, concealing the aforementioned intake opening at least to this front panel at the time of shutdown, and starting the wall installation mold air conditioner which prepared the intake panel opened at the time of operation removable, especially raising design nature.
[0002]
[Description of the Prior Art] In the conventional wall installation mold air conditioner, the aforementioned intake opening is concealed to intake opening prepared in the front face of a case at the time of shutdown, and what prepared the panel opened at the time of operation is proposed. While this panel closes intake opening at the time of shutdown and prevents invasion of dust etc. by considering as what used the lower part as the supporting point and prepared it free [closing motion or frequent appearance], and the structure prepared in the cross direction possible [sliding], he raises design nature by making intake opening plate-like, and is trying to raise the engine performance at the time of operation. Moreover, in these air conditioners, what detaches and attaches a filter from the blow-off section is common.
[0003] Said conventional example is indicated by open official reports and registration Design Gazettes, such as JP,1-244223,A and a registered design No. 863091, and No. 863200.
[0004]
[Problem(s) to be Solved by the Invention] However, since the panel which conceals or opens intake opening is directly attached in the front face of a case in said conventional example, when removing the dust adhering to said panel, since it is forced an activity [at a height, such as wiping with a dustcloth etc. the front face of the case attached in a wall surface,], there is a technical problem also in about [that a problem is in cleaning workability] or safety. Especially cleaning inside the panel which forms the path of the air inhaled is difficult.
[0005] Moreover, in the conventional example, in order to have to detach and attach a filter to be cleaned from the clearance between the narrow blow-off sections frequently, attachment and detachment of a filter ran away by carrying out. In the air conditioner which adopted the heat exchanger bent on a multistage story, to a wrap sake, a heat exchanger must be wrapped, a filter must incurvate said heat exchanger greatly like so that the cross-section configuration which is the mainstream in recent years especially may wrap a transverse fan, and also structurally also in user-friendliness, making this curved filter detach and attach from the slit of the blow-off section has a technical problem also from fields, such as scattering of the dust from the filter at the time of attachment and detachment.
[0006] Furthermore, the concrete structure for carrying out of the conventional example indicated by the Design Gazette is unknown.
[0007] The purpose of this invention is to offer the wall installation mold air conditioner which

makes easy attachment and detachment of the cleaning nature of the intake section, and a filter, raising design nature.
[0008]
[Means for Solving the Problem] Back hippo - which covers a case posterior part for the case equipped with the filter, the heat exchanger, and the blower fan inside in order to attain said purpose in this invention, Cover case anterior part and it constitutes from a front cover which equipped anterior part with intake opening. Equip said front cover with the intake panel which conceals or opens the aforementioned intake opening, conceal the aforementioned intake section for this intake panel at least at the time of shutdown, and the panel drive section is minded so that it may open at the time of operation. For example, it is made to operate so that it may rock by carrying out sliding or the lower part at the supporting point at a cross direction, and is made to attach removable through the attachment-and-detachment device section.
[0009]
[Embodiment of the Invention] Hereafter, the example concerning this invention is explained to a detail with reference to drawing 1 - drawing 13 . In addition, the same or same part, an arrow head, etc. are shown with the same sign, and the duplicate explanation is omitted.
[0010] [the 1st example] -- what shows one example of the air conditioner which drawing 1 - drawing 8 require for this invention -- it is -- drawing 1 -- for a partial flat-surface external view and drawing 4 , a partial base external view and drawing 5 are [an appearance perspective view and drawing 2 / drawing of longitudinal section and drawing 3 / partial drawing of longitudinal section of the panel drive section, drawing 7 , and drawing 8 of the partial cross-sectional view of the panel drive section and drawing 6] the schematic diagrams of the attachment-and-detachment device section.
[0011] First, with reference to drawing 1 - drawing 4 , the outline structure of the appearance of the air conditioner concerning this example is explained. The external view at the time of intake panel closing and the (b) Fig. of the (a) Fig. are external views at the time of intake panel disconnection among drawing 1 . In drawing 1 , it is the indoor unit of an air conditioner which a sign 1 shows in the gross, and it connects with the outdoor unit which is not illustrated through refrigerant piping which is not illustrated, a power-source path cord, a signal path cord, etc., and it is installed in an indoor wall surface, and performs an indoor air conditioning to a subject. The appearance of an indoor unit 1 consists of a back hippo -3 of resin molding, a front cover 5 of resin molding prepared in the front face of this back hippo -3, and an intake panel 7 of resin molding prepared in the front face of this front cover 5. The intake panel 7 is attached in the cross direction free [sliding] through the panel drive section 200 so that it may open at the time of operation of air conditioning/heating, as the aforementioned intake section is concealed at least at the time of shutdown as shown in the (a) Fig., and the intake opening 9 formed in the front face of a front cover 5 is shown in the (b) Fig. Furthermore, the intake panel 7 is attached in the panel drive section 200 removable through the attachment-and-detachment device section 250.
[0012] 11 is the blow-off section arranged by inclining in the method of bottom presence of a front cover 5, and is equipped with the wind back boards 13a and 13b of resin molding of two sheets. the 1st intake section by which 15 is arranged at the transverse-plane lower part of the front panel 7 -- it is -- this -- the 1st intake section 15 consists of aforementioned intake opening 9 and an intake panel 7. The intake panel 7 is formed in oblong tabular [equipped with the magnitude which plugs up the intake opening 9], it makes a longitudinal direction right and left so that a front cover 5 may be wrapped, and it makes the both ends the configuration refracted in the R configuration of being back big. And this intake panel 7 is in the condition which closed the intake opening 9, and it is contained by the crevice 17 formed in the perimeter of this intake opening 9, and it is made flat-tapped [the panel / the outside surface of the intake panel 7 and a front cover 5]. Moreover, the 2nd intake section 19 and the 3rd intake section 21 are formed in the top face of a front cover 5 and the back hippo -3. Moreover, the display 23 which displays an operation situation, and the light sensing portion 25 which receives the actuation signal of the infrared radiation from remote control of another object are arranged at one side of the blow-off section 11.

[0013] And the indoor unit 1 concerning this example is made into the appearance configuration which made the subject the R equipped with the oblong dimension to which 798mm and height are set to 270mm, and it sets depth to 183mm for breadth. In this example, it set up so that height might be set up corresponding to the narrow wall of the upper part of an aperture being small in order that a housing environment in recent years may secure a big aperture, and breadth could be installed in Hanma width of face of 910mm (between columns is a minimum of 800mm), and depth is set up in consideration of this breadth, constraint of height, and a internal structure. Since it can install also in said installation environment where need is increasing in recent years according to the indoor unit 1 which takes this dimension system, the versatility of installation can be improved.
[0014] Moreover, it can be shown as the compact gestalt which got the indoor unit 1 used to a wall surface in the condition of having installed in the wall surface by forming on the big curved surface which the vertical side of a front cover 5 is seen from a side face while the side-face configuration of an indoor unit 1 forms the back hippo -3 in a core box mostly in drawing 1 and drawing 2 , and is almost symmetrical with the upper and lower sides, and is narrowed down towards the front. furthermore, by having formed the top face on the curved surface, the 2nd intake section 19 arranged on this curved surface can be boiled as if it is made hard to be conspicuous in the state of installation, and indoor air can be efficiently inhaled from the front upper part. On the other hand, taking advantage of the "field" which is easy to get used to an installation environment, an inclination can be given to the blow-off section 11 by having formed the inferior surface of tongue on the curved surface.
[0015] The 2nd intake section 19 formed in the top face of a front cover 5 in the top view shown by drawing 3 and the 3rd intake section 21 formed in the top face of the back hippo -3 consider as the grill configuration which equipped non-denses with two or more staves 27 which serve as a subject, and the stud 29 for reinforcement, is leaving the case side where width of face's is wide to a perimeter, and is taken as the gestalt which cannot be easily conspicuous while obtaining a big numerical aperture.
[0016] In the bottom view shown by drawing 4 , the blow-off section 11 formed in the inferior surface of tongue of a front cover 5 leaves the case side of the front cover 7 with wide width of face around, and is arranged to it. The wind back boards 13a and 13b of two sheets are equipped with the band-like gestalt equipped with the almost same curved surface as a big curved surface, conceal opening of the blow-off section 11 mostly in the state of closing, and form the big curved surface which followed the base of an indoor unit 1. And the wind back boards 13a and 13b use as the supporting point the revolving shaft which was prepared in both ends and which is not illustrated, open and close the blow-off section 11 corresponding to an air conditioning at the time of operation, and are controlled through the drive motor which is not illustrated to close opening of the blow-off section 11 at the time of shutdown.
[0017] Thus, a top face and a base are narrowed down towards the front through a big curved surface, and the appearance of the indoor unit 1 concerning this example is made into the compact gestalt symmetrical with four-directions **** which made the keynote the round in which transverse-plane both sides are formed in a big radius-of-circle configuration. According to the indoor unit 1 concerning this example, the blow-off section 11 and the 1st intake section 15 which are visible in the state of installation in the time of a halt And wind back board 13a, While concealing by 13b and the intake panel 7, making it harmonize with an indoor interior and opening the wind back boards 13a and 13b corresponding to an air conditioning at the time of operation The intake panel 7 can be opened, indoor air can be made into cold blast or warm air by the heat exchanger 51 inside absorption from the 1st intake section 15 and 2nd, and 3rd intake section 19 and 21, and it can blow off from the aforementioned blow-off section 11.
[0018] Moreover, in this example, a filter 55 is concealed where the intake panel 7 is shut, and where the intake panel 7 is jutted out ahead, since the handle 57 of a filter 55 can be exposed in the clearance 59 between the lower parts of the intake panel 7 and the intake opening 9, it can clean by pulling out a filter 55 through this handle 57. Furthermore, said activity can be made easy to expose the intake opening 9 in the case of cleaning in the 1st intake section 15, or an internal maintenance, to carry out absorbing with a cleaner etc., and to do, while being able to

simplify attachment and detachment of a filter 55 more according to this indoor unit 1, since the intake panel 7 can be removed from the panel drive section 200 through the attachment-and-detachment device section 250. Since especially the intake panel 7 can moreover be removed easily independently, leaving the panel drive section 200 to a front-cover 5 side, washing and cleaning are easy for it.

[0019] Hereafter, with reference to drawing 2 and drawing 5 - drawing 8 , the panel drive section 200 and the attachment-and-detachment device section 250 are explained to a detail.

[0020] First, in drawing 2 , fundamental internal structure objects, such as a transverse fan 53, a heat exchanger 51, and the drain pans 61a and 61b, the wind back boards 13a and 13b, are attached inside the back hippo -3. And the fundamental internal structure object of transverse-fan 45 grade attached inside the back hippo -3 is included in an indoor unit 1 by attaching a front cover 5. A front cover 5 forms the attachment rib which is not illustrated on up both sides, can scratch this attachment rib to the anterior part of the 3rd intake section 21, and attaches the lower part in the back hippo -3 through a screw etc.

[0021] The panel drive section 200 which makes the intake panel 7 drive, the filter 55 attached removable through the guide rail which was formed in the both-sides wall of a front cover 5, and which is not illustrated, and said display 23 and light sensing portion 25 are attached in a front cover 5. Said panel drive section 200 is arranged at the both sides of a filter 55, a heat exchanger 51, and a transverse fan 53, and consists of a guide rail 201 attached in a front cover 5, a panel supporter 203 which the intake panel 7 is attached in an end through the attachment-and-detachment device section 250, and slides on said guide-rail 201 top, and a mechanical component 205 which slides this panel supporter 203.

[0022] Next, the panel drive section 200 is explained to a detail with reference to drawing 6 and drawing 7 . First, the cross section to which the crevice 207 was turned up is formed in the shape of a KO character, and the guide rail 201 is attached in the attachment rib 63 of the wall of a front cover 5. The cross section which equipped both sides with the guide slot 209 is formed in H configuration, this guide slot 209 engages with the guide rib 211 of said crevice 207, and the panel supporter 203 is supported so that it may slide on a cross direction, while the plate gearing section 213 is formed in a top face. This guide rail 201 and the panel supporter 203 are attached in the attachment rib 63 of the both sides of the wall of an indoor unit 1 as described above. The drive motor 215 with which a mechanical component 205 is formed in one side of the attachment rib 63, Both ends are supported by the revolving shaft of this drive motor 215, and the attachment rib 63 which another side does not illustrate, and it is attached. A coupling rod 217, With the 1st gearing 219 attached in the both sides of this coupling rod 217, and the 3rd gearing 221 which meshes with the plate gearing section 213 of said panel supporter 203 It consists of the 2nd gearing 223 attached in said 3rd gearing's 221 revolving shaft, and a connection belt 225 which connects said 1st and 2nd gearing 219 and 223. In addition, in drawing 5 , it is the electronic-autoparts box to which the microcomputer with which 65 performs the drive motor of a transverse fan 53, and 67 controls an indoor unit 1, and various kinds of electronic autoparts were dedicated.

[0023] According to this panel drive section 200, the running torque of the drive motor 215 arranged at one side is transmitted to the 1st gearing 219 prepared in both sides through a coupling rod 217, and is further transmitted to the 3rd gearing 221 through the connection belt 225 and the 2nd gearing 223. And this 3rd gearing's 221 running torque makes bilateral symmetry move the panel supporter 203 which is engagement with the plate gearing section 213, and has been arranged at both sides to a cross direction along with a guide rail 201. Furthermore, at this example, by considering as the panel drive section 200 which adopted the coupling rod 217 arranged in the front upper part of a heat exchanger 51 in the panel supporter 203 arranged at the both sides of a heat exchanger 51, and the connection belt 225, it is one drive motor and, moreover, the intake panel 7 can be moved to a cross direction with easy structure. Furthermore, according to this structure, the dead space of the front upper part of a heat exchanger 51 can be used effectively. In addition, two drive motors which synchronized the roll control may be adopted, and the panel supporter 203 may be directly operated with the gearing attached in a drive motor.

[0024] Next, with reference to drawing 8 and drawing 9 , the attachment-and-detachment device section 250 is explained. In drawing 8 and drawing 9 , the (a) Fig. is a side elevation of the attachment-and-detachment device section 250, and the (b) Fig. is an A-A' sectional view of the (a) Fig. In drawing, the attachment-and-detachment device section 250 consists of a point 251 of the panel supporter 203, a receiving part 253 attached in the wall of the intake panel 7, and a connection pin 255. The vertical side at a tip is formed in the shape of a wedge, as for a point 251, the checking-and-verifying slot 257 is formed in the center, and the through hole 259 equipped with the bigger path than said checking-and-verifying slot 257 is formed in the location where this checking-and-verifying slot 257 extended far back. Moreover, the cross section equipped with the magnitude which can insert said point 251 makes the receiving part 253 the shape of a RO character-like rectangle cartridge. And through holes 260a and 260b are formed in the location which corresponds with said through hole 259 where the checking and verifying of said point 251 are carried out to the both sides of this receiving part 253. The connection pin 255 is clitteringly constituted with the puching parts 261a and 261b and the narrow diameter portion 263 of the inside of both sides, a major diameter 265, and a spring 267, and said through holes 260a and 260b are equipped with it possible [sliding] at the arrow head P1 and P 2-way, i.e., the longitudinal direction of the connection pin 255. Moreover, the path of a narrow diameter portion 263 is slightly made smaller than the checking-and-verifying slot 257 and through hole 260a, and the path of a major diameter 265 is slightly made smaller than a through hole 259 and through hole 260b. Drawing 7 attaches the condition 7 which carried out the checking and verifying of a point 251 and the receiving part 253, i.e., an intake panel, a condition is shown, and drawing 8 shows the condition in the middle of attachment and detachment of a point 251. Since the major diameter 265 of the connection pin 255 is carrying out checking and verifying to a through hole 259 and through hole 260b in the state of the checking and verifying of drawing 7 , connection of a point 251 and a receiving part 253 is fixed. And since the connection pin 255 has received the force in the arrow-head P1 side which maintains said connection with the spring 267 in this condition, the connection pin 255 can prevent fall of the intake panel 7 by the cause of moving by vibration etc.

[0025] From this condition, by beginning to push puching part 261a on an arrow-head P 2-way, a major diameter 265 moves to an arrow-head P 2-way, the checking and verifying of a major diameter 265 and a through hole 259 can separate, and a narrow diameter portion 263 can be moved to a through hole 259. In this condition, since that magnitude is smaller than the checking-and-verifying slot 257, the narrow diameter portion 263 located in a through hole 259 pulls out a point 251 from a receiving part 253, and it can remove the intake panel 7 independently, leaving the panel drive section 200 to a front cover 5.

[0026] Pushing [beginning to push puching part 261a on an arrow-head P 2-way when equipping with the intake panel 7, / on a receiving part 253 / insert a point 251, as shown in drawing 8 , and change it into the condition of drawing 9 , and / puching part 261a]-on the other hand,-it stop ****, The connection pin 255 moves in the arrow-head P1 direction by the force of a spring 267, and a major diameter 265, a through hole 259, and through hole 260b can carry out checking and verifying, and can fix the intake panel 7 to the panel drive section 200.

[0027] Next, with reference to drawing 1 and drawing 2 , actuation of the indoor unit 1 concerning this example is explained.

[0028] First, an indoor unit 1 equips the internal electronic-autoparts box 67 with a control board, and the microcomputer formed in this control board generalizes an indoor unit 1 for actuation of a drive motor 65, the panel drive section 200, the wind back boards 13a and 13b, various kinds of sensors, etc. in response to the actuation signal from remote control by the light sensing portion 25, and controls it.

[0029] An indoor unit 1 is in a shutdown condition, and as shown in the drawing 1 (a) Fig., the intake panel 7 and the wind back boards 13a and 13b are closed. If the signal of operation is made from remote control in this condition, the microcomputer which is not illustrated If the actuation signal or unattended operation from remote control is set up, it is based on information from that of various sensors. Heating and cooling, or operation modes, such as heating, -- determining -- this decision -- being based -- the intake panel 7 and wind direction -- Plates

13a and 13b are operated -- making -- the intake panel 7 and wind direction -- it is made to operate so that the condition of drawing 1 (a) which opened Plates 13a and 13b wide may be taken

[0030] That is, a microcomputer operates the drive motor which is not illustrated and opens the wind back boards 13a and 13b to the blowdown include angle corresponding to operation mode. Moreover, a microcomputer operates the drive motor 215 which is interlocked with actuation of the aforementioned style back boards 13a and 13b, and opens the intake panel 7. The running torque of a drive motor 215 is transmitted in the plate gearing section 213 through a mechanical component 205, and operates the panel supporter 203 forward along with a guide rail 201. The intake panel attached in the point 251 of the panel supporter 203 in this actuation is made to project ahead. next, a microcomputer rotates a transverse fan 53 -- making -- the 1st, 2nd, and 3rd intake section 15, 19, and 21 to indoor air -- absorbing -- a heat exchanger 51 -- warm air or cold blast -- or -- without it carries out heat exchange -- wind direction -- it controls to make it blow off from the blow-off section 11 along with Plates 13a and 13b. On the other hand, in case operation is suspended, after stopping a transverse fan 53, it controls to return a drive motor 215 and the drive motor of the wind back boards 13a and 13b to the condition of drawing 1 (b) from the condition of drawing 1 (a) by carrying out inverse rotation.

[0031] Moreover, in this example, it has intake panel attachment-and-detachment operation mode. When the actuation signal in this mode is received from remote control, a microcomputer operates only the drive motor 215 which opens the intake panel 7, and makes the intake panel 7 project ahead in this filter intake panel attachment-and-detachment operation mode. In this condition, since the handle 57 of a filter 55 can be exposed in the clearance 59 between the lower parts of the intake panel 7 and the intake opening 9, through this handle 57, a filter 55 can be pulled out and it can be [a filter / it] sufficient or equip with it to clean only a filter 55. Moreover, in this condition, since the attachment-and-detachment device section 250 can be exposed, the intake panel 7 can be demounted by inserting a hand from said clearance 59 and operating puching part 261a. A filter 55 can be easily detached [since the intake opening 9 is completely exposed] in this condition of having demounted, and attached, through the big intake opening 9 rather than it detaches and attaches a filter 55 through said clearance 59.

[0032] And since it is not necessary to make the filter 55 located in this attachment-and-detachment actuation behind the 1st intake section 15 arranged at the 3rd [of a top face], and 2nd intake sections 21 and 19 and transverse plane crooked greatly, to lengthen it, and to make it come out from the blow-off section 11 prepared in the base It cannot be forced the unnecessary stress to a filter 55, scattering of the dust at the time of crookedness etc. can be mitigated further, and it can detach and attach comfortably from large space. Furthermore, since the interior of heat exchanger 51 grade is exposed from said big intake opening 9, this exposed part, for example, the guidance rail which a filter 51 does not illustrate, the dust which inserted the suction nozzle of a cleaner and adhered the dust adhering to the heat exchanger 47 grade which was not removed with a filter 51 to the heat exchanger 51 or the filter 55 can be attracted, or it can dust, and a dustcloth etc. can clean the interior. Furthermore, it is effective also in the case of an internal maintenance. In addition, since the intake panel 7 is demounted independently, it can be washed in cold water in a washroom etc.

[0033] According to the indoor unit 1 concerning this example, the 1st intake section 15 and blow-off section 11 which the interior exposes in the state of installation in the state of shutdown Thus, the intake panel 7 and wind back board 13a, since it can conceal through 13b at the case side of an indoor unit 1, and the flat surface which makes the same side mostly, an indoor unit 1 is familiarized with a flat-surface subject's wall surface, and it harmonizes with an indoor interior -- making -- further -- said -- penetration of the dust from the 1st intake section 15 and blow-off section 11 etc. is mitigable. Moreover, since the intake panel 7 can be removed from the panel drive section 200 through the attachment-and-detachment device section 250 according to this indoor unit 1, cleaning and the internal maintenance activity in attachment and detachment of a filter 55 and the 1st intake section 15 can be made easy to do. And cleaning nature can be improved, while being able to raise the intake numerical aperture at the time of operation and being able to raise operation effectiveness in this example, since a slit

like before is not adopted as the intake section.
[0034] The [2nd example] Drawing 9 - drawing 13 show other examples of the air conditioner concerning this invention, and, for an appearance perspective view and drawing 10 , drawing of longitudinal section and drawing 11 are [drawing 9 / a partial base external view and drawing 13 of a partial flat-surface external view and drawing 12] the schematic diagrams of the attachment-and-detachment device section.
[0035] First, with reference to drawing 9 - drawing 12 , the outline structure of the appearance of the air conditioner concerning this example is explained. The external view at the time of intake panel closing and the (b) Fig. of the (a) Fig. are external views at the time of intake panel disconnection among drawing 9 .
[0036] In drawing 9 , it is the indoor unit of an air conditioner which a sign 2 shows in the gross, and it connects with the outdoor unit which is not illustrated through refrigerant piping which is not illustrated, a power-source path cord, a signal path cord, etc., and it is installed in an indoor wall surface, and performs an indoor air conditioning to a subject. The appearance of an indoor unit 2 consists of a back hippo -4 of resin molding, a front cover 6 of resin molding prepared in the front face of this back hippo -4, and an intake panel 8 of resin molding prepared in the front face of this front cover 6. As the aforementioned intake section is concealed at least at the time of shutdown as shown in the (a) Fig., and the intake opening 9 formed in the front face of a front cover 6 is shown in the (b) Fig., while opening the intake panel 8 at the time of operation of air conditioning/heating It is supported to revolve disengageable through the attachment-and-detachment device section 350 prepared in the both-sides lower part of a front cover 6, the upper part is attached in the end of the panel drive section 300 fixed to a front cover 6 removable, and it is prepared rockable to the front cover 6.
[0037] the 1st intake section by which 16 is arranged at the front of the front panel 8 -- it is -- this -- the 1st intake section 16 consists of aforementioned intake opening 9 and an intake panel 8. The intake panel 8 is formed in oblong tabular [equipped with the magnitude which plugs up the intake opening 9], it makes a longitudinal direction right and left so that a front cover 6 may be wrapped, and it makes the both ends the configuration refracted in the R configuration of being back big. And the indoor unit 2 concerning this example is made into the appearance configuration which made the subject the R equipped with appearances, such as the same dimension as said indoor unit 1, and a side-face configuration. In addition, since the flat-surface configuration and the base configuration are equipped with the same gestalt as said indoor unit 1, they omit explanation.
[0038] Thus, a top face and a base are narrowed down towards the front through a big curved surface, and the appearance of the indoor unit 2 concerning this example is made into the compact gestalt symmetrical with four-directions **** which made the keynote the round in which transverse-plane both sides are formed in a big radius-of-circle configuration. According to the indoor unit 2 concerning this example, and in the time of a halt Conceal the blow-off section 11 and the 1st intake section 16 which seem to be shown in the drawing 9 (a) Fig. in the state of installation by the wind back boards 13a and 13b and the intake panel 8, and it is made to harmonize with an indoor interior. At the time of operation As shown in the drawing 9 (b) Fig., while opening the wind back boards 13a and 13b corresponding to an air conditioning The intake panel 8 can be opened, indoor air can be made into cold blast or warm air by the heat exchanger 51 inside absorption from the 1st intake section 16 and 2nd, and 3rd intake section 19 and 21, and it can blow off from the aforementioned blow-off section 11. Moreover, since the handle 57 of a filter 55 is exposed in the lower part of the intake panel 8 by the idle state, through this handle 57, a filter 55 can be demounted or it can equip.
[0039] Moreover, in operational status, since the upper part of the intake panel 8 is made to open wide, in this example, the intake opening 9 can be concealed in the state of installation through the intake panel 8 also in operational status. And an intake style is made to show around by the intake panel 8 made to incline, a SHOUTOSA-kit can be mitigated or good circulation of indoor air can be realized. Furthermore, according to this indoor unit 2, the intake panel 8 can be removed from a front cover 6 through the attachment-and-detachment device section 350.
[0040] Hereafter, with reference to drawing 10 and drawing 13 , the panel drive section 300 and

the attachment-and-detachment device section 350 are explained to a detail.
[0041] First, in drawing 10 , the panel drive section 300 which makes the intake panel 8 drive, a filter 55, and said display 23 and light sensing portion 25 are attached in a front cover 6. Said panel drive section 300 is arranged in the both-sides upper part of a filter 55, a heat exchanger 51, and a transverse fan 53, and consists of a guide rail 201 attached in a front cover 6, a panel supporter 203 which is equipped with the panel mounting section 400 by which the intake panel 8 is attached at a tip, and slides on said guide-rail 201 top, and a mechanical component 206 which slides this panel supporter 203. with the attachment **** this drive motor 215, a mechanical component 206 to the attachment rib 63 of one side which is not illustrated It consists of the 1st gearing 220 directly linked with this drive motor 215, and the 2nd gearing 222 prepared in the both sides of the coupling rod 217 supported by the attachment rib 63 with which both sides do not illustrate both ends. Said 2nd gearing 222 and 1st gearing 220 which are prepared in a drive-motor 215 side mesh, and the 2nd gearing 222 is made to gear in the plate gearing section 213 of said panel supporter 203 further. The panel mounting section 400 consists of a crevice 401 formed in the top face at the tip of the panel supporter 203, said crevice 401 of the inside both sides of the intake panel 8, and a convex rib 403 formed in a corresponding location. The convex rib 403 is supported by this structure in a crevice 401, and the intake panel 8 can be made to rock with migration of the panel supporter 203. Moreover, according to this panel mounting section 400, support of the lower part of the intake panel 8 is removed in the attachment-and-detachment device section 350, and if the intake panel 8 is moved up, immobilization of the panel mounting section 400 can be demounted easily.
[0042] Next, the attachment-and-detachment device section is explained with reference to drawing 13 . The expansion partial side elevation of the attachment-and-detachment device section 350 and the (b) Fig. of the (a) Fig. are A-A' fragmentary sectional views of the (a) Fig. among drawing 13 . In drawing, the attachment-and-detachment device section 350 consists of a checking-and-verifying slot 351 formed in a front cover 6, a through hole 353 formed in the both sides of the intake panel 8, and a spring 357 with which the cross section attached in this through hole 353 is attached in the connection pin 355 and this connection pin 355 of a circle configuration. (b) Drawing top right-hand side is an outside, and, as for drawing, left-hand side shows the inside. The connection pin 355 consists of the flange sections 359a and 359b of both sides, a narrow diameter portion 361 arranged on the right-hand side of a drawing top (outside), and a major diameter 363 arranged on the left-hand side of a drawing top (inside), and said through hole 353 is equipped with it possible [sliding] in support of the narrow diameter portion 361 at the arrow head P1 and P 2-way, i.e., the longitudinal direction of the connection pin 355. A through hole 353 is formed in the crevice 365 formed in the intake panel 8, and flange section 359a is made to be contained by this crevice 365. And a spring 357 is arranged in the narrow diameter portion 361 between flange section 359a and pars-basilaris-ossis-occipitalis 365a of a crevice 365, and he is trying to always jump out of flange section 359a in arrow-head P1 direction, i.e., an outside. On the other hand, central partial 351a uses the checking-and-verifying slot 351 formed in a front cover 6 as the circular hole 352 which makes the magnitude which can let said narrow diameter portion 361 pass, and carries out checking and verifying to a major diameter 363 at ******** partial 351b, and makes it the configuration where front partial 351c was opened ahead. Drawing 13 moves the intake panel 8 in the direction of an arrow head of the (a) Fig., and shows the condition in the middle of wearing.
[0043] According to this attachment-and-detachment device section 350, by making it move in the direction of an arrow head of a drawing 13 (a) (a) Fig., the connection pin 355 moves to the dotted-line location of the (b) Fig. with the stress of a spring 357 by the position, and a major diameter 363 carries out checking and verifying to the circular hole 352 from the condition of a Fig. The intake panel 8 is supported to revolve rockable by this checking and verifying. Moreover, since said checking and verifying separate and a narrow diameter portion 361 moves to the location of the circular hole 352 by pushing flange section 359a in the direction of the inside shown in an arrow head P2 when demounting the intake panel 8, this narrow diameter portion 361 becomes movable about central partial 351a of the checking-and-verifying slot 351, and can demount the intake panel 8.

[0044] Next, with reference to drawing 9 and drawing 10 , actuation of the indoor unit 2 concerning this example is explained.
[0045] First, an indoor unit 2 equips the internal electronic-autoparts box 67 with a control board, and the microcomputer formed in this control board generalizes an indoor unit 1 for actuation of a drive motor 65, the panel drive section 300, the wind back boards 13a and 13b, various kinds of sensors, etc. in response to the actuation signal from remote control by the light sensing portion 25, and controls it.
[0046] An indoor unit 2 is in a shutdown condition, and as shown in the drawing 9 (a) Fig., the intake panel 8 and the wind back boards 13a and 13b are closed. If the signal of operation is made from remote control in this condition, the microcomputer which is not illustrated If the actuation signal or unattended operation from remote control is set up, it is based on information from that of various sensors. Heating and cooling, or operation modes, such as heating, -- determining -- this decision -- being based -- the intake panel 8 and wind direction -- Plates 13a and 13b are operated -- making -- the intake panel 8 and wind direction -- it is made to operate so that the condition of drawing 9 (b) which opened Plates 13a and 13b wide may be taken
[0047] That is, a microcomputer operates the drive motor which is not illustrated and opens the wind back boards 13a and 13b to the blowdown include angle corresponding to operation mode. Moreover, a microcomputer operates the drive motor 215 which is interlocked with actuation of the aforementioned style back boards 13a and 13b, and opens the intake panel 8. The running torque of a drive motor 215 is transmitted in the plate gearing section 213 through a mechanical component 265, and operates the panel supporter 203 forward along with a guide rail 201. The upper part of the intake panel 8 attached at the tip of the panel supporter 203 in this actuation is made to project ahead, and the supporting point is made to rock the attachment-and-detachment device section 350. next, a microcomputer rotates a transverse fan 53 -- making -- the 1st, 2nd, and 3rd intake section 15, 19, and 21 to indoor air -- absorbing -- a heat exchanger 51 -- warm air or cold blast -- or -- without it carries out heat exchange -- wind direction -- it controls to make it blow off from the blow-off section 11 along with Plates 13a and 13b. On the other hand, in case operation is suspended, after stopping a transverse fan 53, it controls to return a drive motor 215 and the drive motor of the wind back boards 13a and 13b to the condition of drawing 1 (a) from the condition of drawing 9 (b) by carrying out inverse rotation.
[0048] Moreover, in this example, it has intake panel attachment-and-detachment operation mode. When the actuation signal in this mode is received from remote control, a microcomputer operates only the drive motor 215 which opens the intake panel 8, and makes the intake panel 8 open wide in this intake panel attachment-and-detachment operation mode. The checking and verifying of the attachment-and-detachment device section 350 can be removed by lengthening the lower part of the intake panel 8 to the front, pushing flange section 359b of the attachment-and-detachment device section 350 prepared in the both sides of the intake panel 8 in this condition by the digiti manus which supports the intake panel 8 on both sides. And the intake panel 8 can be easily removed by pulling up the intake panel 8 up and removing immobilization of the panel mounting section 400. Since the intake opening 9 can be exposed by this, attachment and detachment of a filter 55, cleaning of the interior, a maintenance eggplant, etc. become easy, and **** washing by the washroom of the intake panel 8 etc. is possible. On the other hand, when equipping with the intake panel 8, the convex rib 403 can be scratched to a crevice 401, the panel mounting section 400 is fixed, and the checking and verifying of the attachment-and-detachment device section 350 can be carried out by pushing in the lower part of the intake panel 8, pushing flange section 359b by the digiti manus which supports the intake panel 8 on both sides. And it can change into the closing condition that it is also again to carry out closing directions with remote control.
[0049] In addition, in this example, in order to detach and attach the intake panel 8 more simply, the intake panel attachment-and-detachment operation mode which changes the intake panel 8 into an open condition was prepared, but as long as it secures the attachment-and-detachment tooth space of the panel mounting section 400, this intake panel 8 may be demounted in the state of closing of the intake panel 8.

[0050] [Other examples] Although front covers 5 and 6 were made into integral construction in the aforementioned example, it is good also as the front cover which covers the front face equipped with the intake opening 9, and structure divided into the front frame equipped with the 2nd intake section 19 and blow-off section 11 etc.
[0051] moreover -- although the example which formed the 2nd and 3rd intake section 19 and 21 in the top face of a case explained in said example -- said -- even if it does not form the 2nd and 3rd intake section 19 and 21, there is same effectiveness. Moreover, when forming the said 2nd and 3rd intake section 19 and 21, by forming the top plate equipped with these intake sections 19 and 21 removable with front covers 5 and 6 with the same structure, and preparing the intake panel which can be opened and closed and which equipped these intake sections 19 and 21 with the same structure as said example, permeation to the interior of dust is mitigated, and it can demount further and can clean. Moreover, as said top plate is made into the intake panels 7 and 8 and integral construction, the effectiveness described above by supposing that the object[same]-ized intake panels 7 and 8 can be opened, and it is removable can be heightened further.
[0052] Furthermore, in this example, although the intake panels 7 and 8 are made to close at the time of shutdown, when forming the 2nd and 3rd intake section 19 and 21, the design nature in operational status can be raised by closing the intake panels 7 and 8 and operating at the operation mode for which the blast weight at the time of breeze operation and dehumidification operation etc. is not required, for example.
[0053]
[Effect of the Invention] According to this invention, raising the design nature of the appearance design in an installation condition, attachment and detachment of an intake panel and a filter can be made easy, and improvement in cleaning nature and insurance of the operation in height can be planned.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The appearance perspective view showing one example of the air conditioner concerning this invention.
[Drawing 2] Drawing of longitudinal section showing one example of the air conditioner concerning this invention.
[Drawing 3] The partial flat-surface external view showing one example of the air conditioner concerning this invention.
[Drawing 4] The partial base external view showing one example of the air conditioner concerning this invention.
[Drawing 5] The partial cross-sectional view of the panel drive section showing one example of the air conditioner concerning this invention.
[Drawing 6] Partial drawing of longitudinal section of the panel drive section showing one example of the air conditioner concerning this invention.
[Drawing 7] The schematic diagram of the attachment-and-detachment device section showing one example of the air conditioner concerning this invention.
[Drawing 8] The schematic diagram of the attachment-and-detachment device section showing one example of the air conditioner concerning this invention.
[Drawing 9] The appearance perspective view showing one example of the air conditioner concerning this invention.
[Drawing 10] Drawing of longitudinal section showing other examples of the air conditioner concerning this invention.
[Drawing 11] The partial flat-surface external view showing other examples of the air conditioner concerning this invention.
[Drawing 12] The partial base external view showing other examples of the air conditioner concerning this invention.
[Drawing 13] The schematic diagram of the attachment-and-detachment device section showing other examples of the air conditioner concerning this invention.
[Description of Notations]
1 2 [-- An intake panel, 9 / -- Intake opening, 11-blow-off section 13a, 13b / -- 15 A style back board, 16 / -- The 1st intake section, 51 / -- A heat exchanger, transverse fan / -- 53 55 / -- A filter, 200 / -- The panel drive section, 250 / -- The attachment-and-detachment device section, 300 / -- The panel drive section, 350 / -- Attachment-and-detachment device section.] -- 3 An indoor unit, 4 -- 5 Back hippo -, 6 -- 7 A front cover, 8

[Translation done.]

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(54)【発明の名称】　壁設置型空気調和機

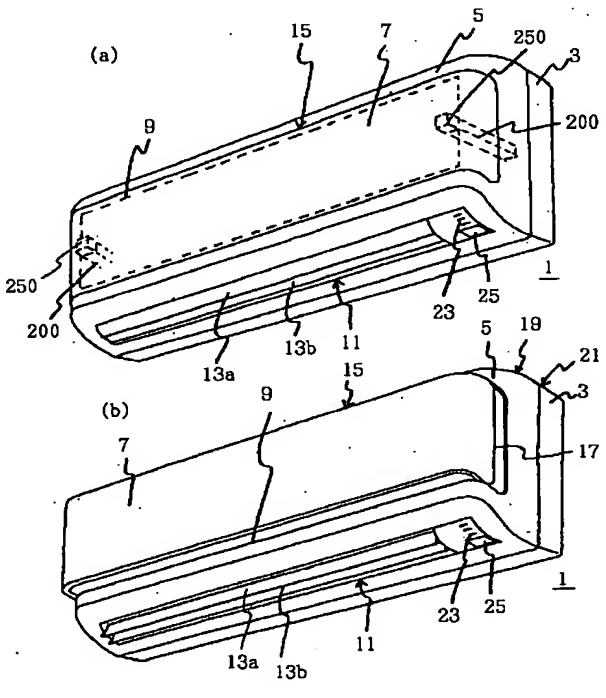
(57)【要約】

【課題】意匠性を高めつつ、吸込部の清掃性とフイルタの着脱を容易にする壁設置型空気調和機を提供する。

【解決手段】内部にフイルタ５５と熱交換器５１と送風フアン５３を備えた筐体を、筐体後部をカバーするバックカバー３と、筐体前部をカバーし、前部に吸込開口部９を備えたフロントカバー５とから構成し、前記フロントカバー５に、前記吸込開口部９を隠蔽または開放する吸込パネル７を備え、該吸込パネル７を、少なくとも運転停止時に前記吸込部開口部９を隠蔽し、運転時に開放するようにパネル駆動機構部２００を介して、例えば、前後方向に摺動、あるいは、下部を支点にして揺動するように動作させ、かつ着脱機構部２５０を介して着脱可能に取付けるようにする。

【効果】設置状態での外観意匠の意匠性を高めつつ、吸込パネルとフイルタの着脱を容易にして、清掃性の向上と高所作業の安全を図ることができる。

図１



【特許請求の範囲】
【請求項１】内部にフイルタと熱交換器と送風フアンを備えた筐体を、筐体後部をカバーするバックカバーと、筐体前部をカバーし、前部に吸込開口部を備えたフロントカバーとから構成し、
前記フロントカバーは、前記吸込開口部を隠蔽または開放する吸込パネルを備え、
前記吸込パネルは、少なくとも運転停止時に前記吸込開口部部を隠蔽し、運転時に開放するようにパネル駆動機構部を介して動作され、かつ着脱機構部を介して着脱可能に取付けられていることを特徴とする壁設置型空気調和機。
【請求項２】前記吸込パネルは、前記パネル駆動機構部に取付けられて前後方向に摺動可能に設けられ、
前記パネル駆動機構部は、フイルタと熱交換器と送風フアンの両側に配置されて、フロントカバーに取付けられるガイドレールと、一端に吸込パネルが取付けられて、前記ガイドレール上を摺動するパネル支持部と、該パネル支持部を摺動させる駆動部とから構成されていることを特徴とする請求項１の壁設置型空気調和機。
【請求項３】前記着脱機構部は、パネル開放時に露出するパネル支持部の一端に設けられていることを特徴とする請求項２の壁設置型空気調和機。
【請求項４】前記フイルタは、パネル開放時に着脱可能にフロントカバーの両側内壁面に設けたガイドレールを介して取付けられていることを特徴とする請求項１～３の壁設置型空気調和機。
【請求項５】前記吸込パネルは、下部をフロントカバーに着脱機構部を介して軸支され、上部をフロントカバーに固定されるパネル駆動機構部の一端に着脱可能に取付けられて、フロントカバーに対して揺動可能に設けられ、
前記パネル駆動機構部は、フイルタと熱交換器と送風フアンの両側に配置されて、フロントカバーに取付けられるガイドレールと、一端に吸込パネルが取付けられて、前記ガイドレール上を摺動するパネル支持部と、該パネル支持部を摺動させる駆動部とから構成されていることを特徴とする請求項１の壁設置型空気調和機。
【請求項６】前記フイルタは、吸込開口部の下端に取っ手が位置するように着脱可能に取付けられるとともに、パネル閉鎖時に、前記取っ手を吸込パネルの下端部に露出するように配置され、フロントカバーの両側内壁面に設けたガイドレールを介して着脱可能に取付けられていることを特徴とする請求項５の壁設置型空気調和機。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】内部にフイルタと熱交換器と送風フアンを備えた筐体を、筐体後部をカバーするバックカバーと、筐体前部をカバーし、前部に吸込開口部を備えたフロントカバーとから構成され、該フロントパネルに少なくとも運転停止時に前記吸込開口部を隠蔽し、運転時に開放する吸込パネルを着脱可能に設けた壁設置型空気調和機に係り、特に意匠性を高めつつ、吸込部の清掃性とフイルタの着脱を容易にする壁設置型空気調和機に関するものである。
【０００２】
【従来の技術】従来の壁設置型空気調和機では、筐体の前面に設けた吸込開口部に、運転停止時に前記吸込開口部を隠蔽し、運転時には開放するパネルを設けたものが提案されている。このパネルは、下部を支点にして開閉または出没自在に設けたものや、前後方向に摺動可能に設けた構造とすることで、運転停止時には吸込開口部を閉鎖して塵埃等の侵入を防ぐとともに、吸込開口部を平板状としてデザイン性を高め、運転時は性能を向上させるようにしている。また、これらの空気調和機では、フイルタの着脱を吹出部から行うものが一般的である。
【０００３】前記従来例は、例えば、特開平１－２４４２２３号及び登録意匠第８６３０９１号、第８６３２００号等の公開公報や登録意匠公報に記載されている。
【０００４】
【発明が解決しようとする課題】しかし、前記従来例では、吸込開口部を隠蔽または開放するパネルが筐体の前面に直接取付けられているために、前記パネルに付着した塵埃を取り除く場合は、壁面に取付けられる筐体の前面を雑巾等で拭く等の高所での作業が強いられるため清掃作業性に問題があるばかりか安全性にも課題がある。特に、吸い込まれる空気の通路を形成するパネルの内側の清掃は困難である。
【０００５】また、従来例では、頻繁に清掃が必要なフイルタの着脱を狭い吹出部の隙間から行わなければならないためにフイルタの着脱がしずらかった。特に、近年の主流になっている、断面形状が貫流フアンを包むように多段階に折り曲げる熱交換器を採用した空気調和機では、前記熱交換器を覆うために、フイルタを熱交換器を包みように大きく湾曲させなければならず、この湾曲したフイルタを吹出部の狭い隙間から着脱させるのは使い勝手的にも、構造的にも、あるいは、着脱時のフイルタからの塵埃の飛散等の面からも課題がある。
【０００６】更に、意匠公報に記載された従来例は、実施するための具体的な構造が不明である。
【０００７】本発明の目的は、意匠性を高めつつ、吸込部の清掃性とフイルタの着脱を容易にする壁設置型空気調和機を提供することにある。
【０００８】
【課題を解決するための手段】本発明では、前記目的を達成するために、内部にフイルタと熱交換器と送風フアンを備えた筐体を、筐体後部をカバーするバックカバーと、筐体前部をカバーし、前部に吸込開口部を備えたフロントカバーとから構成し、前記フロントカバーに、前記吸込開口部を隠蔽または開放する吸込パネルを備え、

該吸込パネルを、少なくとも運転停止時に前記吸込部を隠蔽し、運転時に開放するようにパネル駆動機構部を介して、例えば、前後方向に摺動、あるいは、下部を支点にして揺動するように動作させ、かつ着脱機構部を介して着脱可能に取付けるようにする。

【０００９】

【発明の実施の形態】以下、本発明に係る実施例を図１～図１３を参照して詳細に説明する。なお、同一または同様な部位、矢印等は同一符号をもって示し、重複した説明を省略する。

【００１０】〔第１の実施例〕図１～図８は本発明に係る空気調和機の一実施例を示すものであり、図１は外観斜視図、図２は縦断面図、図３は部分平面外観図、図４は部分底面外観図、図５はパネル駆動機構部の部分横断面図、図６はパネル駆動機構部の部分縦断面図、図７、図８は着脱機構部の概略図である。

【００１１】先ず、図１～図４を参照して、本実施例に係る空気調和機の外観の概略構造を説明する。図１中、（ａ）図は吸込パネル閉鎖時の外観図、（ｂ）図は吸込パネル開放時の外観図である。図１において、符号１で総括的に示すのは空気調和機の室内ユニットであり、図示しない冷媒配管、電源接続線、信号接続線等を介して図示しない室外ユニットと接続され、室内の壁面に設置されて、室内の冷暖房を主体に行うものである。室内ユニット１の外観は、樹脂成型のバックカバー３と、該バックカバー３の前面に設けられる樹脂成型のフロントカバー５と、該フロントカバー５の前面に設けられた樹脂成型の吸込パネル７とから構成されている。吸込パネル７は、フロントカバー５の前面に形成される吸込開口部９を、（ａ）図に示すように少なくとも運転停止時に前記吸込部を隠蔽し、（ｂ）図に示すように冷房／暖房等の運転時に開放するように、パネル駆動機構部２００を介して前後方向に摺動自在に取付けられている。更に、吸込パネル７は着脱機構部２５０を介してパネル駆動機構部２００に着脱可能に取付けられている。

【００１２】１１はフロントカバー５の底面前方に傾斜して配置される吹出部であり、２枚の樹脂成型の風向板１３ａ、１３ｂを備えている。１５はフロントパネル７の正面下方に配置される第１の吸込部であり、該第１の吸込部１５は前記吸込開口部９と吸込パネル７とから構成される。吸込パネル７は、吸込開口部９を塞ぐ大きさを備えた横長板状に形成され、フロントカバー５を包むように長手方向を左右にして、その両端部を後方に大きなアール形状で屈折した形状としている。そして、該吸込パネル７は、吸込開口部９を閉鎖した状態で、該吸込開口部９の周囲に形成される凹部１７に収納され、吸込パネル７とフロントカバー５の外表面が面一となるようにしている。また、フロントカバー５とバックカバー３の上面には第２の吸込部１９と第３の吸込部２１が形成されている。また、吹出部１１の片側には運転状況を表示する表示部２３と、別体のリモコンからの赤外線の操作信号を受ける受光部２５が配置されている。

【００１３】そして、この実施例に係る室内ユニット１は、横幅を７９８mm、高さを２７０mm、奥行を１８３mmとする横長の外形寸法を備えたアールを主体とした外観形状としている。本実施例では、近年の住宅環境が大きな窓を確保するために窓の上部の小壁が小さくなっていることに対応して高さを設定し、また横幅を半間幅９１０mm（柱の間が最小８００mm）に設置できるように設定し、該横幅と高さの制約と内部構造とを考慮して奥行を設定している。この寸法体系をとる室内ユニット１によれば、近年需要が高まっている前記設置環境にも設置できるので、設置の多様性を向上できる。

【００１４】また、図１及び図２において、室内ユニット１の側面形状は、バックカバー３をほぼ箱型に形成するとともに、フロントカバー５の上下面を、側面から見て、ほぼ上下対称で前方に向けて絞り込まれる大きな曲面で形成することにより、壁面に設置した状態において、室内ユニット１を壁面になじんだコンパクトな形態に見せることができる。更に、上面を曲面で形成したことにより、この曲面に配置される第２の吸込部１９を設置状態で目立ちにくくするとともに、前方上方から室内空気を効率良く吸い込ませることができる。一方、下面を曲面で形成したことにより、設置環境に馴染みやすい「面」を生かして吹出部１１に傾斜を与えることができる。

【００１５】図３で示す平面図において、フロントカバー５の上面に形成される第２の吸込部１９と、バックカバー３の上面に形成される第３の吸込部２１は主体となる複数の横桟２７と補強用の縦桟２９を疎らに備えたグリル形状とし、周囲に幅の広い筐体面を残すことで、大きな開口率を得ながら目立ちにくい形態としている。

【００１６】図４で示す底面図において、フロントカバー５の下面に形成される吹出部１１は、周囲に幅の広いフロントカバー７の筐体面を残して配置される。２枚の風向板１３ａ、１３ｂは大きな曲面とほぼ同一の曲面を備えた帯状の形態を備え、閉鎖状態で吹出部１１の開口部をほぼ隠蔽して、室内ユニット１の底面に連続した大きな曲面を形成する。そして、風向板１３ａ、１３ｂは両端部に設けた図示しない回転軸を支点にして、図示しない駆動モータを介して、運転時に吹出部１１を冷暖房に対応して開閉し、運転停止時には、吹出部１１の開口部を閉鎖するように制御される。

【００１７】このように、本実施例に係る室内ユニット１の外観は、上面と底面が大きな曲面を介して前方に向けて絞り込まれ、正面両側が大きな丸み形状で形成されるラウンドを基調とした上下左右ほぼ対称なコンパクトな形態としている。そして、本実施例に係る室内ユニット１によれば、停止時では設置状態で見える吹出部１１と第１の吸込部１５を風向板１３ａ、１３ｂと吸込パネ

ル７で隠蔽して室内インテリアに調和させ、運転時には風向板１３ａ、１３ｂを冷暖房に対応して開放するとともに、吸込パネル７を開いて第１の吸込部１５及び第２、第３の吸込部１９、２１から室内空気を吸い込み内部の熱交換器５１で冷風または温風にして前記吹出部１１から吹き出すことができる。

【００１８】また、この実施例では、フイルタ５５を吸込パネル７を閉めた状態で隠蔽し、吸込パネル７を前方に張り出した状態でフイルタ５５の取っ手５７を、吸込パネル７と吸込開口部９との下方の隙間５９に露出させることができるから、この取っ手５７を介してフイルタ５５を引き出して清掃を行うことができる。更に、この室内ユニット１によれば、吸込パネル７を着脱機構部２５０を介してパネル駆動機構部２００から取り外すことができるので、フイルタ５５の着脱をより簡単にできるとともに、第１の吸込部１５内の清掃や内部メンテナンスの際に、吸込開口部９を露出させて掃除機等で吸い込む等して前記作業をやりやすくすることができる。特に、吸込パネル７は、パネル駆動機構部２００をフロントカバー５側に残したまま単独でしかも簡単に取り外すことができるので、洗浄や清掃が容易である。

【００１９】以下、図２及び図５～図８を参照してパネル駆動機構部２００と着脱機構部２５０を詳細に説明する。

【００２０】先ず、図２において、バックカバー３の内側には貫流フアン５３と熱交換器５１とドレン皿６１ａ、６１ｂ、風向板１３ａ、１３ｂ等の基本的な内部構造体が取付けられる。そして、バックカバー３の内側に取付けられた貫流フアン４５等の基本的な内部構造体は、フロントカバー５を取付けることにより室内ユニット１内に包含される。フロントカバー５は、上部両側に図示しない取付リブを形成し、該取付リブを第３の吸込部２１の前部に引っ掻けて、下部をネジ等を介してバックカバー３に取付ける。

【００２１】フロントカバー５には、吸込パネル７を駆動させるパネル駆動機構部２００と、フロントカバー５の両側内壁に形成した図示しないガイドレールを介して着脱可能に取付けられるフイルタ５５と、前記表示部２３及び受光部２５とが取付けられる。前記パネル駆動機構部２００は、フイルタ５５と熱交換器５１と貫流フアン５３の両側に配置されて、フロントカバー５に取付けられるガイドレール２０１と、一端に着脱機構部２５０を介して吸込パネル７が取付けられて、前記ガイドレール２０１上を摺動するパネル支持部２０３と、該パネル支持部２０３を摺動させる駆動部２０５とから構成されている。

【００２２】次に、図６、図７を参照して、パネル駆動機構部２００について詳細に説明する。先ず、ガイドレール２０１は、凹部２０７を上方に向けた断面がコ字状に形成されてフロントカバー５の内壁の取付リブ６３に取付けられている。パネル支持部２０３は、上面に板歯車部２１３が形成されるとともに、両側にガイド溝２０９を備えた断面がＨ形状に形成され、該ガイド溝２０９が前記凹部２０７のガイドリブ２１１に係合されて、前後方向に摺動するように支持される。このガイドレール２０１とパネル支持部２０３は、前記したように室内ユニット１の内壁の両側の取付リブ６３に取付けられる。駆動部２０５は、取付リブ６３の片側に設けられる駆動モータ２１５と、該駆動モータ２１５の回転軸と他方の図示しない取付リブ６３に両端部を支持されて取付けられ連結棒２１７と、該連結棒２１７の両側に取付けられる第１の歯車２１９と、前記パネル支持部２０３の板歯車部２１３と噛み合う第３の歯車２２１と、前記第３の歯車２２１の回転軸に取付けられる第２の歯車２２３と、前記第１、第２の歯車２１９、２２３を連結する連結ベルト２２５とから構成される。なお、図５において、６５は貫流フアン５３の駆動モータ、６７は室内ユニット１の制御を行うマイコンや各種の電装品を納めた電装品ボックスである。

【００２３】このパネル駆動機構部２００によれば、片側に配置される駆動モータ２１５の回転トルクは連結棒２１７を介して、両側に設けられた第１の歯車２１９に伝達され、更に、連結ベルト２２５と第２の歯車２２３を介して第３の歯車２２１に伝達される。そして、この第３の歯車２２１の回転トルクは板歯車部２１３との噛み合いで、両側に配置されたパネル支持部２０３をガイドレール２０１に沿って左右対称に前後方向に移動させる。更に、本実施例では熱交換器５１の両側に配置されるパネル支持部２０３を熱交換器５１の前面上部に配置される連結棒２１７と連結ベルト２２５を採用したパネル駆動機構部２００とすることにより、１個の駆動モータで、しかも簡単な構造で、吸込パネル７を前後方向に移動させることができる。更に、この構造によれば、熱交換器５１の前面上部のデッドスペースを有効活用することができる。なお、回転制御を同期した２個の駆動モータを採用して、駆動モータに取付けられる歯車でパネル支持部２０３を直接動作させてもよい。

【００２４】次に、図８、図９を参照して着脱機構部２５０を説明する。図８、図９において、（ａ）図は着脱機構部２５０の側面図、（ｂ）図は（ａ）図のＡ－Ａ’断面図である。図において、着脱機構部２５０は、パネル支持部２０３の先端部２５１と、吸込パネル７の内壁に取付けられる受部２５３と、連結ピン２５５とから構成される。先端部２５１は、先端の上下面がくさび状に形成され、その中央に勘合溝２５７が形成され、該勘合溝２５７の奥まった位置に前記勘合溝２５７より大きな径を備えた貫通穴２５９が形成されている。また、受部２５３は、前記先端部２５１を差し込める大きさを備えた断面が口字状の矩形筒形状としている。そして、該受部２５３の両側には、前記先端部２５１を勘合した状態

で、前記貫通穴２５９と対応する位置に貫通穴２６０ａ、２６０ｂが形成されている。連結ピン２５５は、両側の押部２６１ａ、２６１ｂと、その内側の小径部２６３と大径部２６５と、バネ２６７とからから構成され、前記貫通穴２６０ａ、２６０ｂに矢印Ｐ１、Ｐ２方向、つまり連結ピン２５５の長手方向に摺動可能に装着されている。また、小径部２６３の径を勘合溝２５７と貫通穴２６０ａよりわずかに小さくし、大径部２６５の径を貫通穴２５９と貫通穴２６０ｂよりわずかに小さくしている。図７は、先端部２５１と受部２５３を勘合した状態、つまり吸込パネル７を取付け状態を示し、図８は先端部２５１の着脱の途中の状態を示している。図７の勘合状態では、連結ピン２５５の大径部２６５が貫通穴２５９と貫通穴２６０ｂに勘合しているので、先端部２５１と受部２５３の連結が固定される。しかも、この状態ではバネ２６７により、連結ピン２５５は前記連結を維持するような矢印Ｐ１側に力を受けているので、連結ピン２５５が振動等で移動する等の原因による吸込パネル７の落下を防止することができる。

【００２５】この状態から、押部２６１ａを矢印Ｐ２方向に押す出すことで、大径部２６５が矢印Ｐ２方向に移動して、大径部２６５と貫通穴２５９の勘合が外れて、小径部２６３を貫通穴２５９に移動させることができる。この状態では、貫通穴２５９内に位置する小径部２６３は、その大きさが勘合溝２５７より小さいので、先端部２５１を受部２５３から引き出して、吸込パネル７をパネル駆動機構部２００をフロントカバー５に残したまま単独で取り外すことができる。

【００２６】一方、吸込パネル７を装着する場合は、押部２６１ａを矢印Ｐ２方向に押す出しながら、先端部２５１を受部２５３に、図８に示すように挿入して、図９の状態にして、押部２６１ａの押すこと止めれば、連結ピン２５５がバネ２６７の力で矢印Ｐ１方向に移動して、大径部２６５と貫通穴２５９と貫通穴２６０ｂが勘合し、吸込パネル７をパネル駆動機構部２００に固定することができる。

【００２７】次に、図１および図２を参照して、本実施例に係る室内ユニット１の動作を説明する。

【００２８】先ず、室内ユニット１は、内部の電装品ボックス６７に制御基板を備え、該制御基板に設けられるマイコンが駆動モータ６５、パネル駆動機構部２００、風向板１３ａ、１３ｂ、各種のセンサー等の動作をリモコンからの操作信号を受光部２５で受けて、室内ユニット１を統括して制御する。

【００２９】室内ユニット１は、運転停止状態で、図１（ａ）図に示すように、吸込パネル７及び風向板１３ａ、１３ｂが閉鎖されている。この状態で、リモコンから運転操作の信号がなされると、図示しないマイコンは、リモコンからの操作信号または自動運転が設定されていれば各種センサのからの情報に基づいて冷暖、または暖房等の運転モードを決定し、該決定に基づいて吸込パネル７及び風向板１３ａ、１３ｂを動作させて、吸込パネル７及び風向板１３ａ、１３ｂを開放した図１（ａ）の状態を取るように動作させる。

【００３０】つまり、マイコンは、図示しない駆動モータを動作させ風向板１３ａ、１３ｂを運転モードに対応した吹き出し角度まで開放する。また、マイコンは、前記風向板１３ａ、１３ｂの動作に連動して吸込パネル７を開放する駆動モータ２１５を動作させる。駆動モータ２１５の回転トルクは、駆動部２０５を介して板歯車部２１３で伝達され、パネル支持部２０３をガイドレール２０１に沿って前方向に動作させる。この動作でパネル支持部２０３の先端部２５１に取付けられる吸込パネルを前方に突出させる。次に、マイコンは貫流フアン５３を回転させ、第１、第２、第３の吸込部１５、１９、２１から室内空気を吸い込んで熱交換器５１で温風または冷風あるいは熱交換しないで風向板１３ａ、１３ｂに沿って吹出部１１から吹き出させるように制御する。一方、運転を停止する際は、貫流フアン５３を停止した後に、駆動モータ２１５及び風向板１３ａ、１３ｂの駆動モータを逆回転させることで図１（ａ）の状態から図１（ｂ）の状態に戻すように制御する。

【００３１】また、この実施例では、吸込パネル着脱運転モードを備えている。このフイルタ吸込パネル着脱運転モードでは、リモコンから同モードの操作信号を受信すると、マイコンは吸込パネル７を開放する駆動モータ２１５のみ動作させ、吸込パネル７を前方に突出させる。この状態では、吸込パネル７と吸込開口部９との下方の隙間５９にフイルタ５５の取っ手５７を露出させることができるから、フイルタ５５のみ清掃したい時はこの取っ手５７を介してフイルタ５５を引き出してたり、あるいは装着することができる。また、この状態では、着脱機構部２５０を露出させることができるので、前記隙間５９から手を挿入して押部２６１ａを操作することで吸込パネル７を取外すことができる。この取外した状態では、吸込開口部９が完全に露出するので、フイルタ５５を大きな吸込開口部９を介して、前記隙間５９を介してフイルタ５５を着脱するより簡単に着脱することができる。

【００３２】しかも、この着脱動作では、上面の第３、第２の吸込部２１、１９及び正面に配置した第１の吸込部１５の後方に位置するフイルター５５を底面に設けた吹出部１１から大きく屈曲させて引き出させる必要がないから、フイルタ５５への無用な応力を強いることがなく、更に屈曲時の塵埃の飛散等を軽減して、広い空間から楽に着脱することができる。更に、前記大きな吸込開口部９から熱交換器５１等の内部が露出するので、この露出した部分、例えば、フイルター５１の図示しない案内レールや、フイルター５１で取り除けなかった熱交換器４７等に付着した塵埃を掃除機の吸引ノズルを挿入し

て、熱交換器５１やフイルタ５５に付着した塵埃等を吸引したり、あるいは、はたき、雑巾等で内部の清掃を行うことができる。更には、内部のメンテナンスの際にも有効である。加えて、吸込パネル７は、単独で取外されるので、洗面所等で水洗いを行うことができる。

【００３３】このように、本実施例に係る室内ユニット１によれば、運転停止状態では設置状態で内部が露出する第１の吸込部１５及び吹出部１１を吸込パネル７及び風向板１３ａ、１３ｂを介して室内ユニット１の筐体面とほぼ同一面をなす平面で隠蔽することができるから、室内ユニット１を平面主体の壁面に馴染ませて室内のインテリアに調和させ、更に同第１の吸込部１５及び吹出部１１からの塵埃等の進入を軽減することができる。また、この室内ユニット１によれば、吸込パネル７を着脱機構部２５０を介してパネル駆動機構部２００から取り外すことができるので、フイルタ５５の着脱、第１の吸込部１５内の清掃や内部メンテナンス作業をやりやすくすることができる。しかも、この実施例で、吸込部に従来のようなスリットを採用しないので、運転時の吸込開口率を向上させて運転効率を向上させることができるとともに、清掃性を向上することができる。

【００３４】〔第２の実施例〕図９～図１３は本発明に係る空気調和機の他の実施例を示すものであり、図９は外観斜視図、図１０は縦断面図、図１１は部分平面外観図、図１２は部分底面外観図、図１３は着脱機構部の概略図である。

【００３５】先ず、図９～図１２を参照して、本実施例に係る空気調和機の外観の概略構造を説明する。図９中、（ａ）図は吸込パネル閉鎖時の外観図、（ｂ）図は吸込パネル開放時の外観図である。

【００３６】図９において、符号２で総括的に示すのは空気調和機の室内ユニットであり、図示しない冷媒配管、電源接続線、信号接続線等を介して図示しない室外ユニットと接続され、室内の壁面に設置されて、室内の冷暖房を主体に行うものである。室内ユニット２の外観は、樹脂成型のバックカバー４と、該バックカバー４の前面に設けられる樹脂成型のフロントカバー６と、該フロントカバー６の前面に設けられた樹脂成型の吸込パネル８とから構成されている。吸込パネル８は、フロントカバー６の前面に形成される吸込開口部９を、（ａ）図に示すように少なくとも運転停止時に前記吸込部を隠蔽し、（ｂ）図に示すように冷房／暖房等の運転時に開放するとともに、フロントカバー６の両側下部に設けた着脱機構部３５０を介して分離可能に軸支され、上部をフロントカバー６に固定されるパネル駆動機構部３００の一端に着脱可能に取付けられて、フロントカバー６に対して揺動可能に設けられている。

【００３７】１６はフロントパネル８の正面に配置される第１の吸込部であり、該第１の吸込部１６は前記吸込開口部９と吸込パネル８とから構成される。吸込パネル８は、吸込開口部９を塞ぐ大きさを備えた横長板状に形成され、フロントカバー６を包むように長手方向を左右にして、その両端部を後方に大きなアール形状で屈折した形状としている。そして、この実施例に係る室内ユニット２は、前記室内ユニット１と同様な外形寸法及び側面形状等の外観を備えたアールを主体とした外観形状としている。なお、平面形状および底面形状は前記室内ユニット１と同様な形態を備えているため説明を省略する。

【００３８】このように、本実施例に係る室内ユニット２の外観は、上面と底面が大きな曲面を介して前方に向けて絞り込まれ、正面両側が大きな丸み形状で形成されるラウンドを基調とした上下左右ほぼ対称なコンパクトな形態としている。そして、本実施例に係る室内ユニット２によれば、停止時では、図９（ａ）図に示すように、設置状態で見える吹出部１１と第１の吸込部１６を風向板１３ａ、１３ｂと吸込パネル８で隠蔽して室内インテリアに調和させ、運転時には、図９（ｂ）図に示すように、風向板１３ａ、１３ｂを冷暖房に対応して開放するとともに、吸込パネル８を開いて第１の吸込部１６及び第２、第３の吸込部１９、２１から室内空気を吸い込み内部の熱交換器５１で冷風または温風にして前記吹出部１１から吹き出すことができる。また、停止状態で吸込パネル８の下部にフイルタ５５の取っ手５７を露出させているので、この取っ手５７を介してフイルタ５５を取外したり装着を行うことができる。

【００３９】また、この実施例では、運転状態において、吸込パネル８の上方を開放させるので、運転状態においても、吸込パネル８を介して吸込開口部９を設置状態で隠蔽することができる。しかも、傾斜させた吸込パネル８で吸込流を案内させてショウトサーキットを軽減したり、室内空気の良好な循環を実現することができる。更に、この室内ユニット２によれば、吸込パネル８を着脱機構部３５０を介してフロントカバー６から取り外すことができる。

【００４０】以下、図１０及び図１３を参照してパネル駆動機構部３００と着脱機構部３５０を詳細に説明する。

【００４１】先ず、図１０において、フロントカバー６には、吸込パネル８を駆動させるパネル駆動機構部３００と、フイルタ５５と、前記表示部２３及び受光部２５とが取付けられる。前記パネル駆動機構部３００は、フイルタ５５と熱交換器５１と貫流ファン５３の両側上方に配置されて、フロントカバー６に取付けられるガイドレール２０１と、先端に吸込パネル８が取付けられるパネル取付部４００を備えて前記ガイドレール２０１上を摺動するパネル支持部２０３と、該パネル支持部２０３を摺動させる駆動部２０６とから構成されている。駆動部２０６は図示しない片側の取付リブ６３に取つけられる該駆動モータ２１５と、該駆動モータ２１５に直結さ

れる第１の歯車２２０と、両端部を両側の図示しない取付リブ６３に支持される連結棒２１７の両側に設けられる第２の歯車２２２とから構成され、駆動モータ２１５側に設けられる前記第２歯車２２２と第１の歯車２２０が噛み合い、更に第２歯車２２２は前記パネル支持部２０３の板歯車部２１３に噛み合うようにしている。パネル取付部４００は、パネル支持部２０３の先端の上面に形成された凹部４０１と、吸込パネル８の内側両側の前記凹部４０１と対応する位置に形成される凸リブ４０３とから構成される。この構造により、凸リブ４０３が凹部４０１に支持されて、パネル支持部２０３の移動にともなって吸込パネル８を揺動させることができる。また、このパネル取付部４００によれば、着脱機構部３５０で吸込パネル８の下部の支持を外して、吸込パネル８を上方に移動させれば、パネル取付部４００の固定を簡単に取外すことができる。

【００４２】次に、図１３を参照して、着脱機構部を説明する。図１３中、（ａ）図は着脱機構部３５０の拡大部分側面図、（ｂ）図は（ａ）図のＡ－Ａ’部分断面図である。図において、着脱機構部３５０は、フロントカバー６に形成される勘合溝３５１と、吸込パネル８の両側に形成される貫通穴３５３と、該貫通穴３５３に取付けられる断面が円形状の連結ピン３５５と、該連結ピン３５５に取付けられるバネ３５７とから構成される。

（ｂ）図は、図面上右側が外側であり、左側が内側を示している。連結ピン３５５は、両側のつば部３５９ａ、３５９ｂと、図面上右側（外側）に配置される小径部３６１と、図面上左側（内側）に配置される大径部３６３とから構成され、小径部３６１を前記貫通穴３５３に支持して矢印Ｐ１、Ｐ２方向、つまり連結ピン３５５の長手方向に摺動可能に装着されている。貫通穴３５３は吸込パネル８に形成される凹部３６５内に設けられ、該凹部３６５につば部３５９ａが収納されるようにしている。そして、バネ３５７は、つば部３５９ａと凹部３６５の底部３６５ａの間の小径部３６１に配置され、常に、つば部３５９ａを矢印Ｐ１方向、つまり外側に飛び出すようにしている。一方、フロントカバー６に形成される勘合溝３５１は、中央部分３５１ａが前記小径部３６１を通せる大きさとし、奥待った部分３５１ｂに大径部３６３と勘合する円形穴３５２とし、前方部分３５１ｃを前方に開いた形状としている。図１３は、吸込パネル８を（ａ）図の矢印方向に移動させて装着途中の状態を示している。

【００４３】この着脱機構部３５０によれば、図１３（ａ）図の状態から、（ａ）図の矢印方向に移動させることにより、連結ピン３５５が所定の位置で、バネ３５７の応力により（ｂ）図の点線位置に移動して大径部３６３が円形穴３５２と勘合する。この勘合により、吸込パネル８が揺動可能に軸支される。また、吸込パネル８を取外す場合は、つば部３５９ａを矢印Ｐ２に示す内側方向に押すことで、前記勘合が外れ、円形穴３５２の位置に小径部３６１が移動するので、この小径部３６１が勘合溝３５１の中央部分３５１ａを移動可能となり吸込パネル８を取外すことができる。

【００４４】次に、図９および図１０を参照して、本実施例に係る室内ユニット２の動作を説明する。

【００４５】先ず、室内ユニット２は、内部の電装品ボックス６７に制御基板を備え、該制御基板に設けられるマイコンが駆動モータ６５、パネル駆動機構部３００、風向板１３ａ、１３ｂ、各種のセンサー等の動作をリモコンからの操作信号を受光部２５で受けて、室内ユニット１を統括して制御する。

【００４６】室内ユニット２は、運転停止状態で、図９（ａ）図に示すように、吸込パネル８及び風向板１３ａ、１３ｂが閉鎖されている。この状態で、リモコンから運転操作の信号がなされると、図示しないマイコンは、リモコンからの操作信号または自動運転が設定されていれば各種センサのからの情報に基づいて冷暖、または暖房等の運転モードを決定し、該決定に基づいて吸込パネル８及び風向板１３ａ、１３ｂを動作させて、吸込パネル８及び風向板１３ａ、１３ｂを開放した図９（ｂ）の状態を取るように動作させる。

【００４７】つまり、マイコンは、図示しない駆動モータを動作させ風向板１３ａ、１３ｂを運転モードに対応した吹き出し角度まで開放する。また、マイコンは、前記風向板１３ａ、１３ｂの動作に連動して吸込パネル８を開放する駆動モータ２１５を動作させる。駆動モータ２１５の回転トルクは、駆動部２６５を介して板歯車部２１３で伝達され、パネル支持部２０３をガイドレール２０１に沿って前方向に動作させる。この動作でパネル支持部２０３の先端に取付けられる吸込パネル８の上方を前方に突出させて、着脱機構部３５０を支点に揺動させる。次に、マイコンは貫流ファン５３を回転させ、第１、第２、第３の吸込部１５、１９、２１から室内空気を吸い込んで熱交換器５１で温風または冷風あるいは熱交換しないで風向板１３ａ、１３ｂに沿って吹出部１１から吹き出させるように制御する。一方、運転を停止する際は、貫流ファン５３を停止した後に、駆動モータ２１５及び風向板１３ａ、１３ｂの駆動モータを逆回転させることで図９（ｂ）の状態から図１（ａ）の状態に戻すように制御する。

【００４８】また、この実施例では、吸込パネル着脱運転モードを備えている。この吸込パネル着脱運転モードでは、リモコンから同モードの操作信号を受信すると、マイコンは吸込パネル８を開放する駆動モータ２１５のみ動作させ、吸込パネル８を開放させる。この状態で、吸込パネル８の両側に設けた着脱機構部３５０のつば部３５９ｂを両側で吸込パネル８を支持する手の指で押下しながら吸込パネル８の下部を手前に引くことで着脱機構部３５０の勘合を外すことができる。そして、吸込パ

ネル８を上方に引き上げてパネル取付部４００の固定を外すことで、吸込パネル８を簡単に取り外すことができる。これにより、吸込開口部９を露出させることができるから、フイルタ５５の着脱、内部の清掃やメンテナス等が容易になり、吸込パネル８の洗面所等でのまる洗いが可能である。一方、吸込パネル８を装着する場合は、凹部４０１に凸リブ４０３を引っ掻けてパネル取付部４００を固定し、つば部３５９ｂを両側で吸込パネル８を支持する手の指で押下しながら吸込パネル８の下部を押し込むことで着脱機構部３５０を勘合させることができる。そして、再び、リモコンで閉鎖指示することでもとの閉鎖状態にすることができる。

【００４９】なお、本実施例では、吸込パネル８をより簡単に着脱するために、吸込パネル８を開放状態にする吸込パネル着脱運転モードを設けたが、パネル取付部４００の着脱スペースを確保すれば、吸込パネル８の閉鎖状態で同吸込パネル８を取外してもよい。

【００５０】〔その他の実施例〕前記の実施例では、フロントカバー５、６を一体構造としたが、吸込開口部９を備えた前面をカバーする前面カバーと、第２の吸込部１９と吹出部１１を備えたフロント枠等に分離した構造としてもよい。

【００５１】また、前記実施例では、筐体の上面に第２、第３の吸込部１９、２１を設けた実施例で説明したが、同第２、第３の吸込部１９、２１を設けなくても同様な効果がある。また、前記第２、第３の吸込部１９、２１を設ける場合、同吸込部１９、２１を備えた天板を同様な構造でフロントカバー５、６と着脱可能に設け、同吸込部１９、２１に前記実施例と同様な構造を備えた開閉可能な吸込パネルを設けることで、塵埃の内部への浸入を軽減して、更に取外して清掃することができる。また、前記天板を吸込パネル７、８と一体構造とするようにして、同一体化した吸込パネル７、８を開放可能でかつ着脱可能とすることで前記した効果を一層高めることができる。

【００５２】更に、この実施例では、運転停止時に吸込パネル７、８を閉鎖させているが、例えば、第２、第３の吸込部１９、２１を設ける場合は、微風運転時や、除湿運転時等の送風量が必要でない運転モードでは吸込パネル７、８を閉鎖して運転することで、運転状態での意匠性を高めることができる。

【００５３】

【発明の効果】本発明によれば、設置状態での外観意匠の意匠性を高めつつ、吸込パネルとフイルタの着脱を容易にして、清掃性の向上と高所作業の安全を図ることができる。

【図面の簡単な説明】

【図１】本発明に係る空気調和機の一実施例を示す外観斜視図。

【図２】本発明に係る空気調和機の一実施例を示す縦断面図。

【図３】本発明に係る空気調和機の一実施例を示す部分平面外観図。

【図４】本発明に係る空気調和機の一実施例を示す部分底面外観図。

【図５】本発明に係る空気調和機の一実施例を示すパネル駆動機構部の部分横断面図。

【図６】本発明に係る空気調和機の一実施例を示すパネル駆動機構部の部分縦断面図。

【図７】本発明に係る空気調和機の一実施例を示す着脱機構部の概略図。

【図８】本発明に係る空気調和機の一実施例を示す着脱機構部の概略図。

【図９】本発明に係る空気調和機の一実施例を示す外観斜視図。

【図１０】本発明に係る空気調和機の他の実施例を示す縦断面図。

【図１１】本発明に係る空気調和機の他の実施例を示す部分平面外観図。

【図１２】本発明に係る空気調和機の他の実施例を示す部分底面外観図。

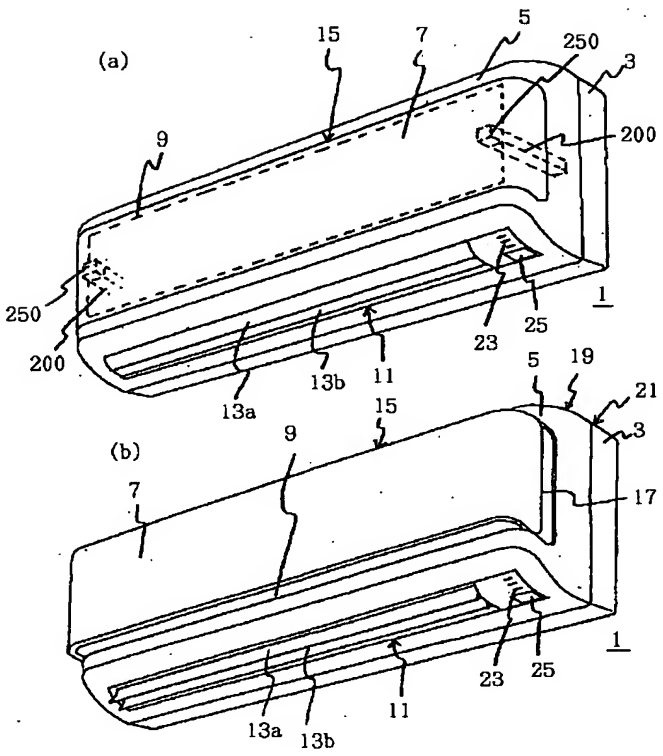
【図１３】本発明に係る空気調和機の他の実施例を示す着脱機構部の概略図。

【符号の説明】

１、２…室内ユニット、３、４…バックカバー、５、６…フロントカバー、７、８…吸込パネル、９…吸込開口部、１１－吹出部、１３ａ、１３ｂ…風向板、１５、１６…第１の吸込部、５１…熱交換器、貫流フアン…５３、５５…フイルタ、２００…パネル駆動機構部、２５０…着脱機構部、３００…パネル駆動機構部、３５０…着脱機構部。

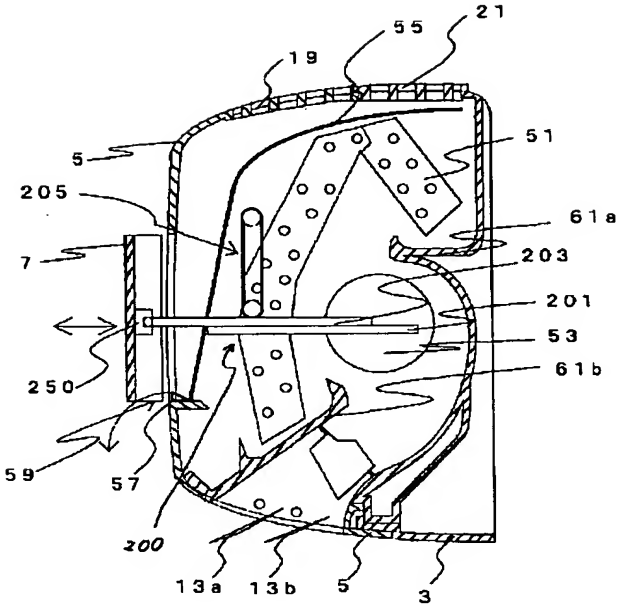
【図１】

図１



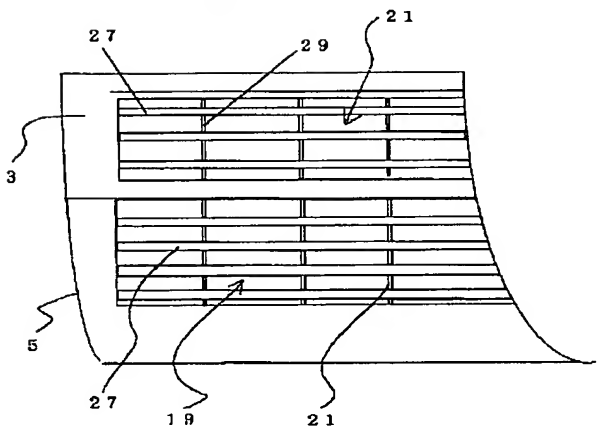
【図２】

図２



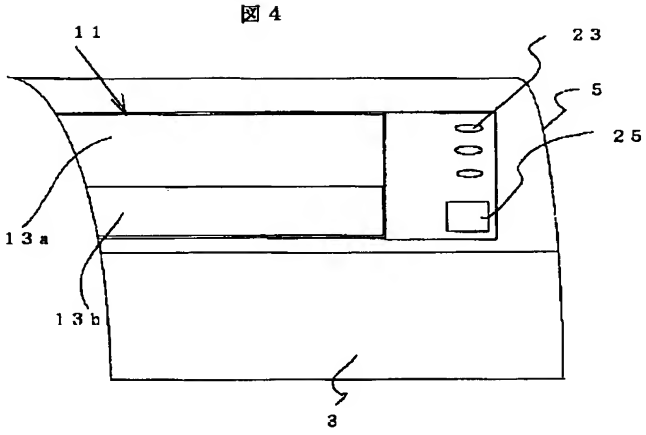
【図３】

図３



【図４】

図４



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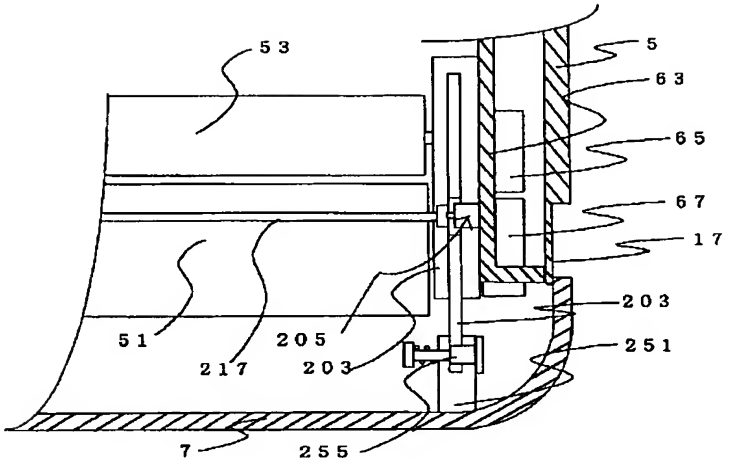


図５

【図６】

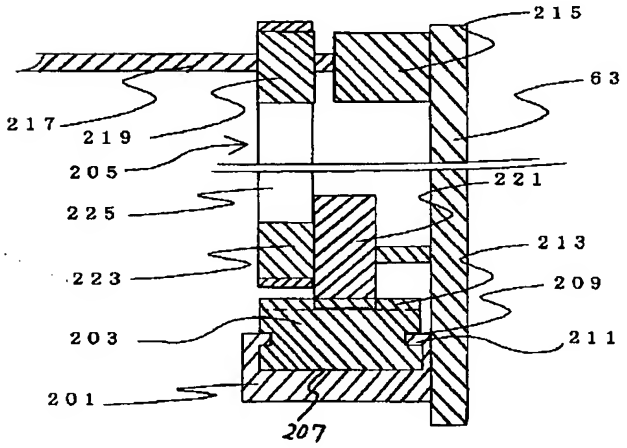


図６

【図７】

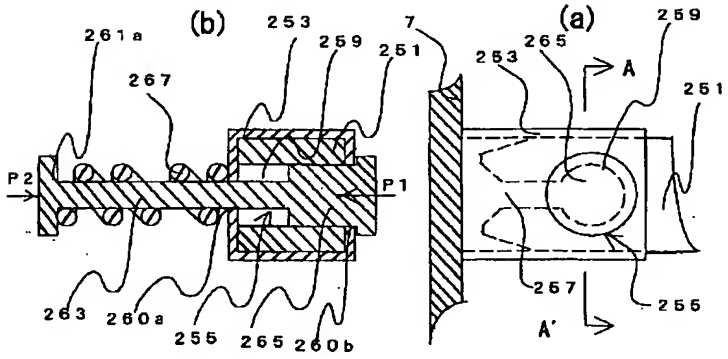


図７

【図８】

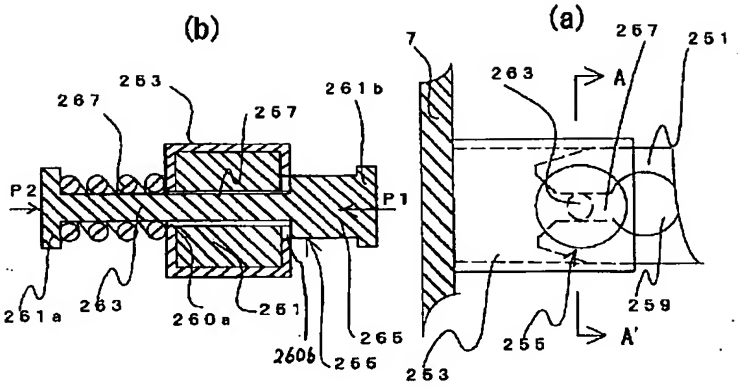
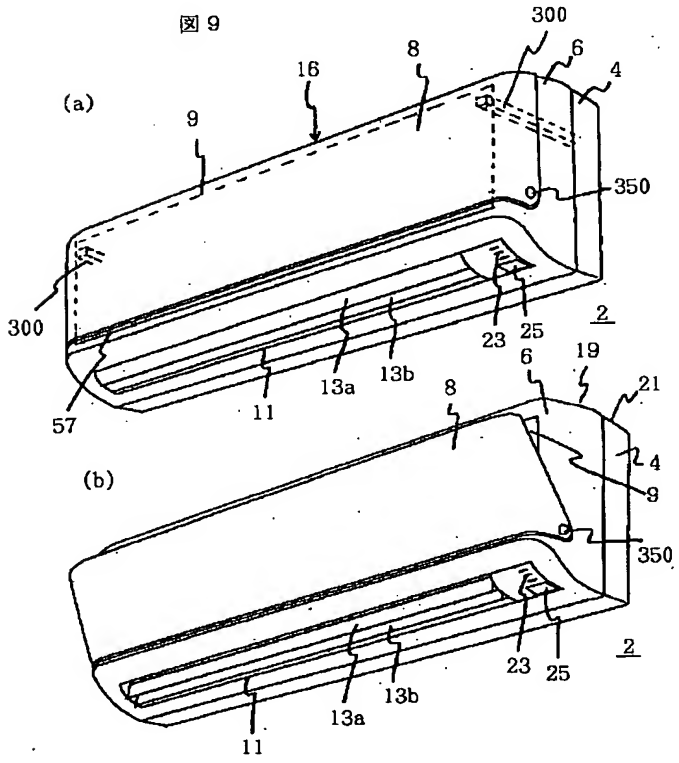


図８

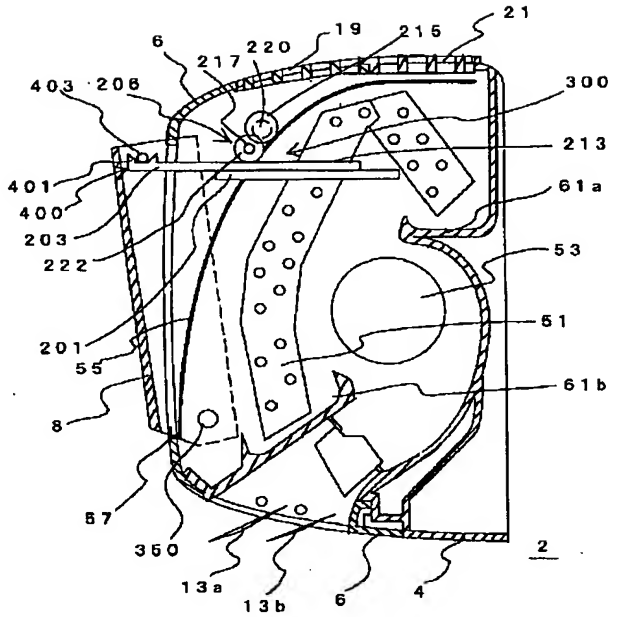
【図９】

図９



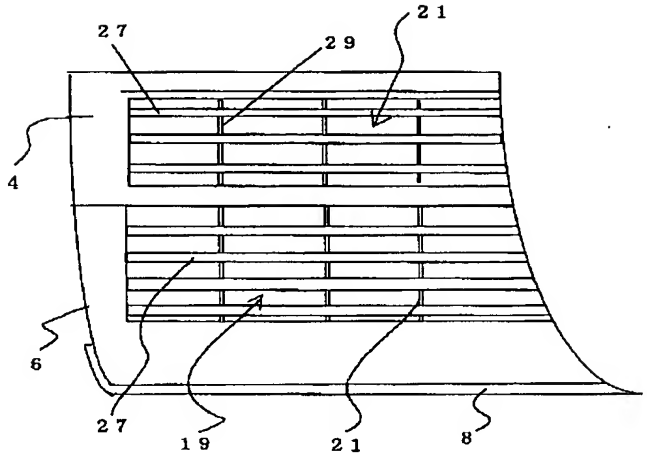
【図１０】

図１０



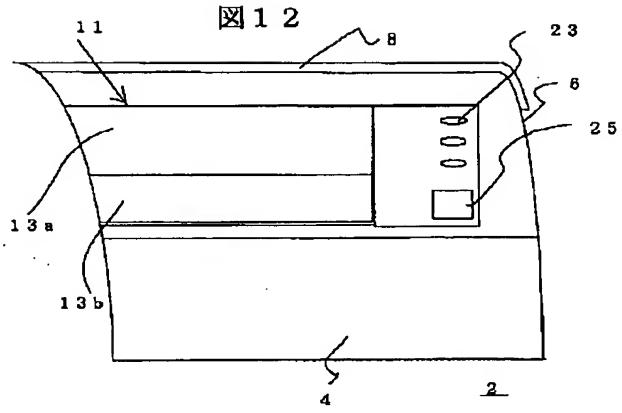
【図１１】

図１１



【図１２】

図１２



【図１３】

図１３